

13. The image guided surgery system as set forth in claim 1 wherein the digital medium includes:

an area which stores the software application which enables full user functionality;

5 an area which stores specifications and characteristics of the instrumented surgical tools;

an area which stores 3D virtual representations, images, or information of the instrumented tools and accessories contained in the kit; and

10 an area which stores additional information relevant to a particular surgical procedure.

14. The image guided surgery system as set forth in claim 1 wherein the tracking system includes:

5 one of acoustic sensors, infrared sensors, video cameras, that are utilized to determine a location of the instrumented surgical tools.

15. The image guided surgery system as set forth in claim 1 wherein the tracking system includes:

a mobile cart for positioning the camera in the surgical suite.

16. A method of image guided surgery using a computer, a one-time-use surgical application specific kit that contains a digital medium with application specific software and instrumented surgical tools and accessories,  
5 a tracking system that locates the instrumented surgical tools while in use, and a display, the method comprising:

at a surgical site, removing the digital medium from the kit and inserting it into the computer;

10 augmenting software on the computer with software from the digital medium to process diagnostic images, register the diagnostic images to a patient's anatomy, register different sets of imaging modalities to each other, and track locations of the instrumented surgical tool;

15           during a surgical procedure, displaying a  
virtual representation of the instrumented surgical tool  
on the image, correlating movement of the virtual tool  
representation on the image with movement of the  
corresponding instrumented tool in physical space;

20           after the surgical procedure, disposing of the  
tools and disabling the digital medium against reuse.

17. The method as set forth in claim 16 further  
including:

5           using the computer as a planning station before  
a surgical procedure to define surgical entry points and  
trajectories.

18. The method as set forth in claim 16 further  
includes:

5           archiving on the digital medium a record or  
history of the performed surgical procedure, including the  
downloaded diagnostic images, selected instruments,  
implants, length of surgical time, notes, or other  
relevant information obtained during the surgical  
procedure.

19. The method as set forth in claim 18 further  
includes:

          replaying archived data for review and  
diagnostic follow-up.

20. The method as set forth in claim 16 further  
including:

          deactivating or encrypting the digital medium  
against reuse after the surgical procedure.

21. The method as set forth in claim 16 further  
including:

          preventing reuse of the disposable surgical  
tools.

22. The method as set forth in claim 16 further including:

disposing of the surgical instruments and the digital medium without reuse after the surgical procedure.

23. A method of image guided surgery comprising:

providing a kit which includes (1) surgical tools and accessories and (2) a digital medium which is  
5 preprogrammed with (i) at least a portion of a graphics processing program and (ii) information concerning the surgical tools and accessories;

at a surgical site, removing the secure digital medium from the kit and inserting it into a processor  
10 which, between software with which the processor is preprogrammed and the software from the digital medium, processes electronic medical diagnostic images, correlates a coordinate system of a patient with a coordinate system of the diagnostic images, tracks a location of the  
15 instrumented surgical tools in the coordinate system of the patient, and translates the instrument position into the coordinate system of the diagnostic image.

24. The method as set forth in claim 23 wherein the surgical kit further includes:

medical appliances, and  
a user control for interconnection with the  
5 processor to control image displays.

25. The method as set forth in claim 24 further including:

prior to placing the surgical tools, the surgical appliances, and the user control in the surgical  
5 kit, packaging the surgical tools, the surgical appliances, and user control in sterile condition in sterile packaging.